AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1-19 (canceled).

20. (new): An illumination system for a microlithography projection exposure apparatus for illuminating an illumination field with the light from a primary light source, comprising:

an optical axis (12, 112);

a light distribution device (55, 155) for receiving light from the primary light source (11) and for generating a predeterminable, two-dimensional intensity distribution from the light from the primary light source in a first surface (25) of the illumination system;

a first raster arrangement (35, 135) comprising first raster elements (36, 136) for receiving the spatial, two-dimensional intensity distribution and for generating a raster arrangement of secondary light sources;

a second raster arrangement (40, 140) comprising second raster elements (41, 141) for receiving light from the secondary light sources and for at least partially superimposing light from the secondary light sources in the illumination field (51, 151);

the light distribution device comprising at least one diffractive optical element (21, 121) for generating an angular distribution whose far field has separate or contiguous luminous zones (70,

72) which are coordinated in terms of form and size with the form and size of the first raster elements (36, 136) of the first raster arrangement.

21. (new): The illumination system as claimed in claim 20, wherein the diffractive optical element (21, 121) is designed for setting a two-dimensional intensity distribution in the first surface (35) in such a way that all first raster elements (70, 72) associated with a predetermined exit light distribution are essentially completely illuminated by the intensity distribution, while first raster elements which do not contribute to the exit light distribution remain essentially unilluminated.

22. (new): The illumination system as claimed in claim 20, wherein the diffractive optical element (21, 121) is configured in such a way that the luminous zones (70, 72) generate an approximately circular, approximately annular, or approximate dipole or multipole intensity distribution with a rastering corresponding to the form and size of the first raster elements on the raster elements (36, 136) of the first plane.

23. (new): The illumination system as claimed in claim 20, wherein no zoom device is arranged between the primary light source (11) and the first raster arrangement (35, 135).

24. (new): The illumination system as claimed in claim 20, wherein no axicon system is arranged between the primary light source (11) and the first raster arrangement (35, 135).

25. (new): The illumination system as claimed in claim 20, wherein no variably adjustable optical component is arranged between the primary light source (11) and the first raster arrangement (35, 135).

26. (new): The illumination system as claimed in claim 20, wherein the light distribution device comprises a changeover device (20) for exchanging a first diffractive optical element (21) for generating a first, two-dimensional intensity distribution for at least one second diffractive optical element (22) for generating a second, two-dimensional intensity distribution different from the first intensity distribution.

27. (new): The illumination system as claimed in claim 20, wherein the diffractive optical element (21) has two or more differently structured partial regions which can optionally be introduced into the beam path of the illumination system for the purpose of generating a number of different, two-dimensional light distributions corresponding to the number of partial regions.

28. (new): The illumination system as claimed in claim 20, wherein the diffractive optical element (21) is configured in such a way that at least one luminous zone (72) completely illuminates at least one raster element.

29. (new): The illumination system as claimed in claim 20, wherein the diffractive optical element (21) is configured in such a way that at least one luminous zone (70) illuminates with maximum intensity at least one raster element apart from a narrow edge region (71).

30. (new): The illumination system as claimed in claim 20, wherein the primary light source is a laser (11) having a divergence D_L in at least one plane containing the light propagation direction of the light, wherein a maximum divergence of the diffractive optical element in the plane is D_{Max}, and wherein the number n of the raster elements of the first raster arrangement, for generating a homogenizing effect, is predetermined such that a defined ratio (effective transmittance T) of the proportion of radiation impinging on the first raster element (36, 136) with flat top intensity to the total radiation impinging on the first raster element (36, 136) is not undershot.

31. (new): The illumination system as claimed in claim 30, wherein the effective transmittance T is greater than 70%, preferably greater than 80%.

32. (new): The illumination system as claimed in claim 20, wherein the primary light source is a laser (11) having a divergence of between 0.5 and 1 mrad in at least one plane containing the light propagation direction of the light, wherein the maximum divergence of the diffractive element (21, 121) in the plane is 30 mrad, and wherein the number of raster elements (36, 136) of the first raster arrangement (35, 135) in the plane lies between 10 and 22.

33. (new): The illumination system as claimed in claim 20, wherein the diffractive optical element (21, 121) is embodied as a computer-generated hologram.

34. (new): The illumination system as claimed in claim 20, wherein the raster elements (36, 136, 41, 141) of the first and/or the second raster arrangement are embodied as microlenses.

35. (new): The illumination system as claimed in claim 20, wherein a shading diaphragm (60, 160) for generating a sharp edge of the intensity distribution is provided in the vicinity of the illumination surface (50) or in the vicinity of a conjugate plane (70) with respect thereto.

36. (new): The illumination system as claimed in claim 20, wherein at least one Fourier lens arrangement (23, 123) is arranged between the diffractive optical element (21, 121) and the first raster arrangement.

37. (new): Method for producing semiconductor components and other finely structured devices, comprising the following steps:

illuminating a reticle arranged in an object plane (70) of a projection objective with the light from a primary light source (11) with the aid of an illumination system embodied as claimed in claim 20;

generating an image of the reticle on a light-sensitive substrate;

wherein, for illuminating the reticle, the diffractive optical element (21, 121) generates a two-dimensional intensity distribution in the form of luminous zones (70, 72) on the first surface (25) of the illumination system, spatial distribution of which essentially corresponds to the form of a predeterminable exit light distribution.

38. (new): The method as claimed in claim 37, wherein a changeover of illumination modes of the illumination system is carried out exclusively by exchanging the diffractive optical

element (21, 121) and/or by optionally introducing differently structured partial regions of the diffractive optical element (21, 121) into the beam path of the illumination system.